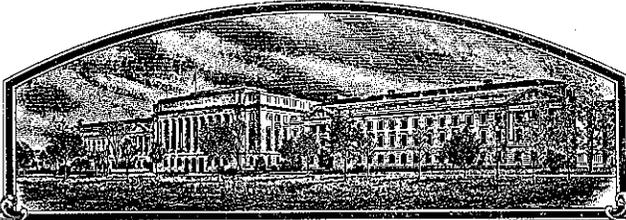


No.

9500034



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Pioneer Hi-Bred International, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE
Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED, PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSES, OR USING IT IN PRODUCING A NEW OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT, 1930 (54 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'9412'



In Testimony Whereof, I have herewith set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this thirty-first day of July in the year of our Lord one thousand nine hundred and ninety-seven.

Attest:

Marsha A. Hunter
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Samuel R. Hitchcock
Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE
 AGRICULTURAL MARKETING SERVICE
 SCIENCE DIVISION

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(INSTRUCTIONS ON REVERSE)

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) (as it is to appear on the Certificate) Pioneer Hi-Bred International, Inc.		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO.		3. VARIETY NAME 9412	
4. ADDRESS (street and no. or R.F.D. no., city, state, and ZIP) 700 Capital Square 400 Locust St. Des Moines, IA 50309		5. PHONE (include area code) (515)270-3582		FOR OFFICIAL USE ONLY PVPO NUMBER 9500034	
6. GENUS AND SPECIES NAME Glycine max		7. FAMILY NAME (Botanical) Leguminosae			
8. CROP KIND NAME (Common Name) Soybean		9. DATE OF DETERMINATION September 1988		F I L I N G Date NOVEMBER 8, 1994 Time <input type="checkbox"/> A.M. <input checked="" type="checkbox"/> P.M. F E E S Filing and Examination Fee: \$ 2,325.00 Date OCTOBER 27, 1994 Certificate Fee: \$ 300.00 Date July 1, 1994 R E C E I V E D	
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) Corporation					
11. IF INCORPORATED, GIVE STATE OF INCORPORATION Iowa		12. DATE OF INCORPORATION 1926			
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS					
John Grace 7300 NW 62nd Ave. PO Box 1004 Johnston, IA 50131-1004		Mike Roth (copy) 700 Capital square, 400 Locust St. Des Moines, IA 50309			
PHONE (include area code):					

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow INSTRUCTIONS on reverse)

- a. Exhibit A, Origin and Breeding History of the Variety
- b. Exhibit B, Novelty Statement
- c. Exhibit C, Objective Description of Variety
- d. Exhibit D, Additional Description of Variety
- e. Exhibit E, Statement of the Basis of Applicant's Ownership
- f. Seed Sample (2,500 viable untreated seeds). Date Seed Sample mailed to Plant Variety Protection Office 10/28/94
- g. Filing and Examination Fee (\$2,325) made payable to "Treasurer of the United States"

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See section 83(a) of the Plant Variety Protection Act) YES (If "YES," answer items 16 and 17 below) NO (If "NO," skip to item 18 below)

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? YES NO

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
 FOUNDATION REGISTERED CERTIFIED

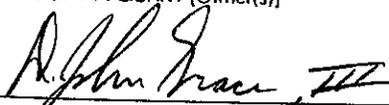
18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?
 YES (If "YES," through Plant Variety Protection Act Patent Act. Give data. _____).
 NO

19. HAS THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
 YES (If "YES," GIVE NAMES OF COUNTRIES AND DATES) _____
 NO

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in section 41, and is entitled to protection under the provisions of section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT [Owner(s)] 	CAPACITY OR TITLE Soybean Research Coordinator	DATE 10/20/94
SIGNATURE OF APPLICANT [Owner(s)]	CAPACITY OR TITLE	DATE

9412 Soybean (April, 1994)

Exhibit A: Variety 9412 was selected from an F5 population resulting from a cross between 9361 and 9442. This population was advanced to the F5 generation by modified single-seed descent. The F5:6 progeny row was observed and selected in Illinois in the summer of 1988.

9412 has undergone four years of extension testing and purification. It has been observed to be uniform and stable for all plant traits from generation to generation, with no evidence of variants.

Two and two tenths acres of variety 9412 breeder seed were grown during the summer of 1992 in Illinois. Eighty three acres of parent (foundation) seed equivalent were grown in 1993.

Exhibit B: Variety 9412 is most similar to varieties 9392, 9411, and 9442. However, variety 9392 has high seed protein peroxidase activity and 9412 has low activity. 9411 is resistant to *Phytophthora megasperma* races 1 and 2 while 9412 is susceptible. 9442 matures significantly later than 9412 (see table 2)



U.S. DEPARTMENT OF AGRICULTURE
 AGRICULTURAL MARKETING SERVICE
 LIVESTOCK, MEAT, GRAIN & SEED DIVISION
 PLANT VARIETY PROTECTION OFFICE
 BELTSVILLE, MARYLAND 20705

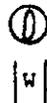
EXHIBIT C
 (Soybean)

OBJECTIVE DESCRIPTION OF VARIETY
 SOYBEAN (*Glycine max* L.)

NAME OF APPLICANT(S) Pioneer Hi-Bred International, Inc.	TEMPORARY DESIGNATION	VARIETY NAME 9412
ADDRESS (Street and No., or R.F.D. No., City, State, and Zip Code) 700 Capital Square 400 Locust St. Des Moines, IA 50309		FOR OFFICIAL USE ONLY PVPO NUMBER 9500034

Choose the appropriate response which characterizes the variety in the features described below. When the number of significant digits in your answer is fewer than the number of boxes provided, place a zero in the first box when number is 9 or less (e.g.,). Starred characters ★ are considered fundamental to an adequate soybean variety description. Other characters should be described when information is available.

1. SEED SHAPE:



1 = Spherical (L/W, L/T, and T/W ratios = < 1.2)
 3 = Elongate (L/T ratio > 1.2; T/W = < 1.2)

2 = Spherical Flattened (L/W ratio > 1.2; L/T ratio = < 1.2)
 4 = Elongate Flattened (L/T ratio > 1.2; T/W > 1.2)

★ 2. SEED COAT COLOR: (Mature Seed)

1 = Yellow 2 = Green 3 = Brown 4 = Black 5 = Other (Specify) _____

3. SEED COAT LUSTER: (Mature Hand Shelled Seed)

1 = Dull ('Corsoy 79'; 'Braxton') 2 = Shiny ('Nebsoy'; 'Gasoy 17')

★ 4. SEED SIZE: (Mature Seed)

Grams per 100 seeds

★ 5. HILUM COLOR: (Mature Seed)

1 = Buff 2 = Yellow 3 = Brown 4 = Gray 5 = Imperfect Black 6 = Black 7 = Other (Specify) _____

★ 6. COTYLEDON COLOR: (Mature Seed)

1 = Yellow 2 = Green

★ 7. SEED PROTEIN PEROXIDASE ACTIVITY:

1 = Low 2 = High

★ 8. SEED PROTEIN ELECTROPHORETIC BAND:

1 = Type A (SP1^a) 2 = Type B (SP1^b)

★ 9. HYPOCOTYL COLOR:

1 = Green only ('Evans'; 'Davis') 2 = Green with bronze band below cotyledons ('Woodworth'; 'Tracy')
 3 = Light Purple below cotyledons ('Beeson'; 'Pickett 71')
 4 = Dark Purple extending to unifoliolate leaves ('Hodgson'; 'Coker Hampton 266A')

★ 10. LEAFLET SHAPE:

1 = Lanceolate 2 = Oval 3 = Ovate 4 = Other (Specify) _____

11. LEAFLET SIZE:

- 2 1 = Small ('Amsoy 71'; 'A5312') 2 = Medium ('Corsoy 79'; 'Gasoy 17')
 3 = Large ('Crawford'; 'Tracy')

12. LEAF COLOR:

- 2 1 = Light Green ('Weber'; 'York') 2 = Medium Green ('Corsoy 79'; 'Braxton')
 3 = Dark Green ('Gnome'; 'Tracy')

★ 13. FLOWER COLOR:

- 2 1 = White 2 = Purple 3 = White with purple throat

★ 14. POD COLOR:

- 1 1 = Tan 2 = Brown 3 = Black

★ 15. PLANT PUBESCENCE COLOR:

- 2 1 = Gray 2 = Brown (Tawny)

16. PLANT TYPES:

- 2 1 = Slender ('Essex'; 'Amsoy 71') 2 = Intermediate ('Amcor'; 'Braxton')
 3 = Bushy ('Gnome'; 'Govan')

★ 17. PLANT HABIT:

- 3 1 = Determinate ('Gnome'; 'Braxton') 2 = Semi-Determinate ('Will')
 3 = Indeterminate ('Nebsoy'; 'Improved Pelican')

★ 18. MATURITY GROUP:

- 0 7 1 = 000 2 = 00 3 = 0 4 = I 5 = II 6 = III 7 = IV 8 = V
 9 = VI 10 = VII 11 = VIII 12 = IX 13 = X

★ 19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

BACTERIAL DISEASES:

- ★ 0 Bacterial Pustule (*Xanthomonas phaseoli* var. *sojensis*)
★ 1 Bacterial Blight (*Pseudomonas glycines*)
★ 0 Wildfire (*Pseudomonas tabaci*)

FUNGAL DISEASES:

- ★ 1 Brown Spot (*Septoria glycines*)
 Frogeye Leaf Spot (*Cercospora sojina*)
★ 0 Race 1 0 Race 2 0 Race 3 0 Race 4 0 Race 5 Other (Specify) _____
 0 Target Spot (*Corynespora cassicola*)
 0 Downy Mildew (*Peronospora trifoliorum* var. *manshurica*)
 0 Powdery Mildew (*Microsphaera diffusa*)
★ 1 Brown Stem Rot (*Cephalosporium gregatum*)
 0 Stem Canker (*Diaporthe phaseolorum* var. *caulivora*)

19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant) (Continued)

FUNGAL DISEASES: (Continued)

- ★ 1 Pod and Stem Blight (*Diaporthe phaseolorum* var; *sojae*)
- 1 Purple Seed Stain (*Cercospora kikuchii*)
- 1 Rhizoctonia Root Rot (*Rhizoctonia solani*)
- Phytophthora Rot (*Phytophthora megasperma* var. *sojae*)
- ★ 1 Race 1 1 Race 2 1 Race 3 1 Race 4 1 Race 5 0 Race 6 1 Race 7
- 1 Race 8 1 Race 9 Other (Specify) _____

VIRAL DISEASES:

- 1 Bud Blight (Tobacco Ringspot Virus)
- 1 Yellow Mosaic (Bean Yellow Mosaic Virus)
- ★ 1 Cowpea Mosaic (Cowpea Chlorotic Virus)
- 1 Pod Mottle (Bean Pod Mottle Virus)
- ★ 1 Seed Mottle (Soybean Mosaic Virus)

NEMATODE DISEASES:

- Soybean Cyst Nematode (*Heterodera glycines*)
- ★ 0 Race 1 0 Race 2 1 Race 3 0 Race 4 Other (Specify) _____
- 0 Lance Nematode (*Hoplaimus Colombus*)
- ★ 0 Southern Root Knot Nematode (*Meloidogyne incognita*)
- ★ 0 Northern Root Knot Nematode (*Meloidogyne Hapta*)
- 0 Peanut Root Knot Nematode (*Meloidogyne arenaria*)
- 0 Reniform Nematode (*Rotylenchulus reniformis*)
- OTHER DISEASE NOT ON FORM (Specify): _____

20. PHYSIOLOGICAL RESPONSES: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

- ★ 1 Iron Chlorosis on Calcareous Soil
- Other (Specify) _____

21. INSECT REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

- 0 Mexican Bean Beetle (*Epilachna varivestis*)
- 0 Potato Leaf Hopper (*Empoasca fabae*)
- 0 Other (Specify) _____

22. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED.

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant Shape	9442	Seed Coat Luster	9442
Leaf Shape	9442	Seed Size	9361
Leaf Color	9361	Seed Shape	9442
Leaf Size	9361	Seedling Pigmentation	9442

23. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY: Paired Comparison Data

VARIETY	NO. OF DAYS MATURITY	PLANT LODGING SCORE	CM PLANT HEIGHT	LEAFLET SIZE		SEED CONTENT		SEED SIZE G/100 SEEDS	NO. SEEDS/POD
				CM Width	CM Length	% Protein	% Oil		
Submitted	135	1.5	89.9			42.4	20.8	17	3
Name of Similar Variety	137.5	1.8	92.5			42.1	20.8	15	3

PUBLICATIONS USEFUL AS REFERENCE AIDS FOR COMPLETING THIS FORM:

1. Caldwell, B.E., ed. 1973. Soybeans: Improvement, Production, and Uses. Amer. Soc. Agron. Monograph No. 16.
2. Buttery, B.R. and R.I. Buzzell. 1968. Peroxidase activity in seeds of soybean varieties. Crop Sci., 8: 722-725.
3. Hymowitz, T. 1973. Electrophoretic analysis of SBTI-A₂ in the USDA soybean germplasm collection. Crop Sci., 13: 420-421.
4. Payne, R.C. and L.F. Morris. 1976. Differentiation of soybean cultivars by seedling pigmentation patterns. J. Seed Technol. 1: 1-19.



Exhibit D:

In Exhibit C we have identified 9412 as susceptible to bacterial blight, brown spot, pod and stem blight, rhizoctonia root rot, bud blight, yellow mosaic, cowpea mosaic, pod mottle, and seed mottle. This does not mean that we consider 9412 to be worse than other varieties of similar maturity in reaction to these challenges. Rather, we do not consider 9412 to be immune to them. Therefore, we have chosen to be conservative and have identified 9412 as "susceptible".

Variety 9412 is an early group IV variety. If group IV maturities are divided into tenths, the relative maturity of 9412 is 4.1.

Isozyme information for 9412.

<u>ACO2</u>	<u>ACO3</u>	<u>ACO4</u>	<u>ACP</u>	<u>DIA</u>	<u>ENP</u>	<u>IDH1</u>	<u>IDH2</u>	<u>MDH</u>	<u>MPI</u>	<u>PGM</u>	<u>PHI</u>
1	1	1	A	A	A	2	1	A	A	1	1

Exhibit E.

Variety '9412' was originated and developed by plant breeders from whom, by agreement, Pioneer Hi-Bred International has obtained exclusive rights to protect and market variety '9412'. No rights to such invention, discovery, or development are retained by the plant breeders or by any other party.

Table 2. 9412 vs. 9442 for maturity

Observations are from plots planted using a randomized complete block design. Planted plot length was 21 feet, trimmed to 15 feet. Plot width was 4-30 inch rows, or 10 feet. Maturity was scored as the number of days from planting until 95% of the pods in the plot were mature. All data was taken in 1993.

	9442	9412		
Rep	X1	X2	X1-X2	(X1-X2)**2
1.	136	136	0	0
2.	141	139	2	4
3.	127	125	2	4
4.	126	123	3	9
5.	131	125	6	36
6.	128	124	4	16
7.	138	138	0	0
8.	118	114	4	16
9.	116	113	3	9
sum	1161	1137	24	94
mean	129	126.3	2.67	

$$SD^{**2} = \frac{94 - (24^2/9)}{9*8} = 0.416667$$

$$SD = 0.645497$$

$$t = 2.67 / 0.645 = 4.14 \text{ significant at the } 0.01 \text{ level}$$

$$df = 8$$

$$n = 9 \text{ group of individuals}$$

$$\text{ave X1} = 129$$

$$\text{ave X2} = 126.3333$$

$$9442 \text{ ave} = 129 \text{ days}$$

$$9412 \text{ ave} = 126.3 \text{ days}$$

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

1. Name Of Applicant(s) Pioneer Hi-Bred International, Inc.	2. Temporary Designation Or Experimental Number 	3. Variety Name 9412
4. Address (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) 7100 NW 62nd Ave P.O. Box 1000 Johnston, Iowa 50131-1000	5. Telephone (include area code) 515-270-3582	6. Fax (include area code) 515-253-2288
7. PVPO Number 9500034		

8. Does the applicant own all rights to the variety? Mark an "X" in appropriate block. If no, Please explain. YES NO

9. Is the applicant (individual or company) a U.S. national or U.S. based company? YES NO
If no, give name of country _____

10. Is the applicant the original owner? YES NO *If no, please answer the following:*
a. If original rights to variety were owned by individual(s), Is (are) the original owner(s) a U.S. national(s)?
 YES NO If no, give name of country _____
b. If original rights to variety were owned by a company, is the original owner(s) a U.S. based company?
 YES NO If no, give name of country _____

11. Additional explanation on ownership (if needed, use reverse for extra space):

PLEASE NOTE:

Plant variety protection can be afforded only to owners (not licensees) who meet one of the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definition.

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, and marital or familial status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (braille, large print, audiotape, etc.) should contact the USDA Office of Communications at (202) 720-5881 (voice) or (202) 720-7808 (TDD).

To file a complaint, write the Secretary of Agriculture, U.S. Department of Agriculture, Washington, D.C. 20250, or call 1-800-245-6340 (voice) or (202) 720-1127 (TDD). USDA is an equal employment opportunity employer.